



Use of LANDSAT TM/ETM+ data to analyze urban heat island and its relationship with land use/cover change

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Abstract:

Rapid urbanization has significant impacts on weather and climate change, and urban heat island (UHI) is one of the most important impacts, causing central urban areas to be obviously warmer than their nearby rural areas. Remote sensing provides immense amounts of data for the study on urban heat island. Xuzhou is a famous industrial city in China experiencing fast urbanization since 1978. In this paper, Landsat TM/ETM+ images over Xuzhou from 1994 to 2007 were utilized to classify land use/cover types by decision tree classifier and retrieve brightness temperatures. Results indicated that the intensity of urban heat island was strengthened with the sprawl of urban areas. To explore and quantitatively analyze the relationship between urban heat island and land use/cover change, mathematical models were built using four indices, Normalized Difference Vegetation Index, Normalized Difference Water Index (NDWI), Normalized Difference Built-up Index (NDBI), and Normalized Difference Bareness Index (NDBaI).

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Temperature

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location:

resource focuses on specific location

Non-United States

Climate Change and Human Health Literature Portal

Non-United States: Asia

Asian Region/Country: China

Health Impact: ☒

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Resource Type: ☒

format or standard characteristic of resource

Research Article

Timescale: ☒

time period studied

Time Scale Unspecified